

## Predictors of Veterans' Participation in Cognitive–Behavioral Group Treatment for PTSD<sup>1</sup>

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Increasingly effective treatments for posttraumatic stress disorder (PTSD) have led to dramatic improvements in the lives of many trauma survivors; however, a significant subgroup of individuals with PTSD avoids mental health treatment. Little is known about the features distinguishing those who participate in treatment from those who do not. We analyzed archival clinical data from 197 male veterans who were evaluated in a Veterans Affairs Medical Center PTSD clinic. We found greater PTSD severity associated with initial enrollment and continued participation in a PTSD group treatment program, and we noted few differences on other background and symptom measures. These preliminary findings suggest possible directions for future research in this area, which may have implications for enhancing service delivery to individuals with PTSD.

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Epidemiological findings suggest that the majority of adults have been exposed to trauma and that approximately 8 to 9% of Americans develop posttraumatic stress disorder (PTSD) at some time in their lives (e.g., Breslau, Davis, Andreski, Federman, & Anthony, 1998; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). PTSD is often chronic and has been associated with a range of social, occupational, and health problems that often persist for decades following trauma exposure (e.g., Amaya-Jackson et al., 1999; Kulka et al., 1990; Zayfert, Dums, Ferguson, & Hegel, 2002). The pervasiveness and persistence of PTSD and associated symptomatology clearly indicates the need for effective interventions with individuals suffering from this disorder.

Although increasingly effective treatments have been developed over the past 20 years (see Foa, Keane, & Friedman, 2000), individuals with PTSD are often reluctant to engage in treatment, as evidenced by estimates that one third to two thirds of those suffering from this disorder have never obtained specialized mental health treatment (e.g., Kulka et al., 1990; Marshall, Jorm, Grayson, Dobson, & O'Toole, 1997). Even when they do enroll in treatment, their participation is often marked by irregular attendance and premature termination (e.g., Burstein, 1986; Marks, Lovell, Noshirvani, Livanou, & Thrasher, 1998; Ronis et al., 1996). Some authors have speculated that the psychological avoidance mechanisms that are characteristic of PTSD might interfere with enrollment and continued participation in treatment (e.g., Burstein, 1986; Schwartz & Kowalski, 1992); however, we have limited understanding of this phenomenon or of other factors associated with participation in PTSD treatment.

In the only published study examining predictors of enrolling in PTSD treatment, Solomon (1989) found enrollment associated with more severe PTSD and other psychiatric symptoms, physical health problems, and social impairment. Although there has been very little

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investigation of factors associated with initial enrollment in treatment, several PTSD treatment outcome studies have explored predictors of completing a course of treatment. Investigators have compared individuals who completed versus those who withdrew prematurely from their treatment protocols. These studies have generally observed no differences on demographic variables or on measures of trauma history, intelligence, depression, or physical pain (e.g., Munley, Bains, Frazee, & Schwartz, 1994; van Minnen, Arntz, & Keijsers, 2002), although Schnurr et al. (2003) did find premature withdrawal associated with unemployment, history of substance abuse, and lower Global Assessment of Functioning scores. Some studies found that more severe PTSD symptoms predicted completing treatment, while other studies failed to demonstrate any differences (e.g., Marks et al., 1998; Munley et al., 1994; van Minnen et al., 2002). In the only study to examine each of the PTSD symptom clusters independently, Bradey Dansky, Back, Foa, and Carroll (2001) found that individuals who withdrew prematurely reported significantly higher levels of baseline avoidance symptoms than those who completed treatment. This finding supports the proposition that psychological avoidance mechanisms might interfere with continuation in PTSD treatment.

Although research has provided some clues about characteristics associated with participation in PTSD treatment, the existing literature in this area is very limited and focused primarily on completion of research protocols. The applicability to clinical populations is unknown, and much remains to be learned about individuals who either do not enroll in or withdraw prematurely from PTSD treatment. In this study, we focused on veterans receiving clinical services in a specialized PTSD clinic, and we investigated demographic characteristics and symptom variables associated with enrollment and continued participation in a psychoeducational and cognitive-behavioral group treatment program for PTSD.

## Method

### *Participants*

Between 1995 and 2001, 740 male veterans were evaluated at the National Center for PTSD, VA Boston Healthcare System, or at an affiliated VA Outpatient Clinic. Evaluations are voluntary and performed at the request of the veteran himself or another treatment provider. Although most veterans request evaluations for diagnostic and treatment planning purposes, 22% of these veterans also requested documentation supporting their compen-

sation claims. Upon completion of an initial assessment, veterans with significant PTSD symptoms who express an interest in participating in therapy are referred to begin group treatment in the next treatment cycle. Treatment cycles begin every 4 months.

There are many diverse approaches to treating PTSD. On the basis of years of clinical experience and research, our clinic has adopted a structured cognitive-behavioral model focusing on psychoeducation and skill-building to serve as the core of the PTSD treatment program. The ongoing treatment program involves three successive 12-week groups: "Understanding PTSD" (Munroe, Bitman, Hymen, & Makary, 1998), "Stress Management" (Grace & Niles, 1998), and "Anger Management" (Grace, Niles, & Quinn, 1999). Completion of each group in the treatment sequence is a prerequisite for enrollment in the subsequent group.

### *Predictors of Enrollment*

Because of changes in the standard assessment battery over time and variability in the measures used to assess PTSD, most of the 740 veterans who were evaluated in the clinic were missing data on measures that we examined as predictors of enrolling in the PTSD group treatment program. We had complete data on each of the measures of interest for 197 of these veterans, and we used this sample to examine predictors of enrollment.

Participants ranged in age from 29 to 80 years ( $M = 52.3$ ,  $SD = 9.6$ ). Additional demographic and background characteristics are presented in Table 1. Two thirds (70%) of the veterans in this sample met full diagnostic criteria for PTSD. Those whose symptoms were below the threshold for a formal PTSD diagnosis nonetheless reported significant PTSD symptoms, endorsing a mean of 3.3 reexperiencing, 4.1 avoidance and numbing, and 3.2 hyperarousal symptoms at moderate intensity or greater.

### *Predictors of Continued Participation*

Of the 740 veterans who were assessed between 1995 and 2001, 188 began treatment by enrolling in the Understanding PTSD group. To examine predictors of continuing into the Stress Management and Anger Management groups, we analyzed data collected on those individuals who enrolled in the Understanding PTSD group between 1995 and 2001. The numbers and percentages of veterans who enrolled in and completed each of the three treatment groups are presented in Table 2.

Table 1. Demographic Characteristics of Participants

Variable	<i>n</i>	Percentage of respondents
Race ( <i>N</i> = 196)		
Caucasian	147	75
African American	37	19
Other	12	6
Era of service ( <i>N</i> = 194)		
World War II/Korea	21	11
Vietnam	147	76
Gulf War	18	9
Other	8	4
Branch of service ( <i>N</i> = 196)		
Army	115	59
Marines	38	19
Navy	15	8
Air force	18	9
Multiple branches	10	5
Entry into military ( <i>N</i> = 186)		
Drafted	46	25
Enlisted	129	69
Volunteered for draft	11	6
Education ( <i>N</i> = 166)		
High school/GED	142	85
Some college	103	61
Bachelors' degree	34	20
Married or living with a partner ( <i>N</i> = 189)	84	45
Currently employed ( <i>N</i> = 191)	187	46
Income below \$10,000 ( <i>N</i> = 165)	64	39
Receiving VA disability compensation ( <i>N</i> = 188)	96	51
Medical condition ( <i>N</i> = 181)	60	33
PTSD ( <i>N</i> = 176)	29	17
Other psychiatric diagnosis ( <i>N</i> = 175)	6	4
Applying for increase in compensation for currently recognized disability ( <i>N</i> = 148)	69	47
Applying for new disability ( <i>N</i> = 174)	124	71

### Procedure

The data evaluated in this study were collected for clinical purposes and were archived with identifying information removed. We examined demographic and background data collected at the time of the initial assessment as potential predictors of enrollment and continuation in treatment. In addition, we evaluated symptom and life satisfaction measures completed at each stage of the assessment and treatment sequence as predictors of continuing into the next stage of treatment. Thus, we analyzed measures completed during the initial assessment as predictors of enrolling in the Understanding PTSD group, measures completed during the Understanding PTSD group as predictors of continuing into Stress Management, and mea-

Table 2. Veterans' Enrollment in and Completion of Each of the Three PTSD Treatment Groups

Group	Number who enrolled (% of those who were eligible to enroll) in group	Number who completed (% of those who began) group
Understanding PTSD	188 <sup>a</sup>	145 (77%)
Stress Management	97 (67%)	72 (74%)
Anger Management	49 (68%)	35 (71%)

<sup>a</sup> Although we do not have precise information on the number of veterans who were referred to the Understanding PTSD group, almost all veterans who complete an initial evaluation are offered such a referral.

asures completed during Stress Management as predictors of continuing into Anger Management.

We conducted exploratory analyses using bivariate techniques to identify potential predictors of enrollment and continued participation in the treatment program. We chose a bivariate approach to analysis because the limited previous empirical investigation was insufficient to inform multivariate hypotheses. With the relatively small sample sizes in the later groups, we also did not have sufficient power to conduct multivariate analyses.

We conducted a total of 73 analyses, including bivariate analyses of 23 predictors of enrolling in treatment, 21 predictors of continuing into the Stress Management group, and 29 predictors of continuing into the Anger Management group. Although Bonferroni corrections are often applied to adjust for conducting a large number of analyses, given the dearth of research in this area and our access to a large volume of data, we considered it important to explore a variety of potential predictors without inflating the type II error rate or reducing the power of our analyses. Some authors (e.g., Perneger, 1998) have advised against applying a Bonferroni correction in an exploratory study such as the present one, where failing to detect important differences would be more problematic than identifying differences that may later be disproved. With the goal of illuminating any potential predictors that might exist, we conducted a large number of exploratory analyses that will require confirmatory investigation in future studies.

### Instruments

Psychological measures are routinely administered during an initial evaluation and during each treatment group. Each of the following instruments is psychometrically sound, and the references cited for each measure contain supporting reliability and validity data.

### Initial Evaluation

During their initial evaluation, veterans complete a comprehensive demographic and background questionnaire and the Combat Exposure Scale (CES; Keane, Fairbank, Caddell, Taylor, & Mora, 1989). Other measures administered during the initial assessment include the PTSD Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993), the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988), the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grants, 1993), the Drug Abuse Screening Test (DAST; Skinner, 1982), and the Boston Life Satisfaction Inventory (BLSI; Smith, Niles, King, & King, 2001).

### Additional Group Measures

Veterans repeat the PCL, the BDI, and the BLSI and complete a general health survey (Health Survey, Veterans Short Form 12, SF-12V; Kazis et al., 1994) during each group. In addition, they complete the State-Trait Anger Expression Inventory (STAXI; Spielberger, 1988) during the Stress Management and Anger Management groups.

### Results

Chi-square analyses and *t* tests revealed no significant findings for demographic or background variables (including age, race, religion, era or branch of military service, mode of entry into the military, level of combat exposure, marital status, education, employment, or compensation-seeking status); for combat exposure (CES); or for measures of anxiety (BAI), alcohol or drug abuse (AUDIT; DAST), or general health (SF-12V). These nonsignificant findings are not detailed below; however findings on measures that yielded significant results for PTSD (PCL), depression (BDI), and anger (STAXI) are highlighted.

### Predictors of Enrollment

Among the symptom and life satisfaction measures administered during the initial assessment, we noted few significant differences between individuals who began treatment and those who did not (see Table 3), with only depression and PTSD hyperarousal symptoms predicting enrollment in treatment.

**Table 3.** Predictors of Enrolling in the Understanding PTSD Group

	<i>M (SD)</i> of those who did not enter treatment	<i>M (SD)</i> of those who entered treatment	<i>t</i>	<i>df</i>
PTSD symptom severity				
Reexperiencing	59.4 (13.3)	64.1 (11.3)	-1.88	194
Avoidance/numbing	17.3 (4.6)	17.9 (4.1)	-0.66	194
Hyperarousal	23.9 (6.0)	26.5 (5.4)	-2.26*	194
Overall	18.2 (4.4)	19.8 (3.6)	-1.86	194
Depression	23.2 (11.6)	29.3 (10.7)	-2.60**	185

*Note.* PTSD symptoms were measured using the PTSD Checklist, and depression was measured using the Beck Depression Inventory.

\**p* < .05. \*\**p* < .01.

### Predictors of Continued Participation

None of the demographic or background variables was associated with continuing into the Stress Management or Anger Management groups. The only significant predictors of continuing into the Stress Management group were symptoms of PTSD assessed during the Understanding PTSD group (see Table 4). Dimensions of anger (tendency to express anger outwardly, frequency of attempts to control anger, and frequency of anger expression) assessed during the Stress Management group were the only significant predictors of continuing into the Anger Management group (see Table 5).

### Discussion

Although previous studies have yielded mixed results regarding the association between PTSD symptomatology and participation in PTSD treatment, we found that PTSD symptoms were significantly associated with both enrolling and continuing in treatment. With the exception of depression predicting enrollment in treatment,

**Table 4.** Predictors of Continuing in the Stress Management Group

	<i>M (SD)</i> of those who did not begin group	<i>M (SD)</i> of those who began group	<i>t</i>	<i>df</i>
PTSD symptom severity				
Reexperiencing	17.2 (4.9)	19.7 (3.6)	-3.06**	109
Avoidance/numbing	25.2 (5.8)	28.0 (3.4)	-3.07**	108
Hyperarousal	18.9 (4.0)	20.4 (3.0)	-2.24*	109
Overall	61.2 (13.4)	67.8 (8.6)	-3.03**	109
Depression	27.4 (9.8)	28.7 (9.6)	0.27	104

*Note.* PTSD symptoms were measured using the PTSD Checklist, and depression was measured using the Beck Depression Inventory.

\**p* < .05. \*\**p* < .01.

Table 5. Predictors of Continuing into the Anger Management Group

	<i>M (SD)</i> of those who did not begin group	<i>M (SD)</i> of those who began group	<i>t</i>	<i>df</i>
PTSD symptom severity				
Reexperiencing	18.3 (3.9)	18.2 (2.7)	0.11	31
Avoidance/numbing	25.5 (6.5)	25.7 (4.7)	-0.10	30
Hyperarousal	17.9 (4.5)	19.8 (2.9)	-1.53	31
Overall	61.5 (13.2)	63.7 (8.6)	-0.57	31
Depression	27.0 (11.9)	25.0 (7.3)	0.60	31
Anger				
State anger	18.2 (8.2)	19.4 (8.0)	-0.42	35
Trait anger	23.8 (7.7)	26.6 (5.4)	-1.29	35
Angry temperament	9.2 (3.4)	10.9 (2.2)	-1.53	33
Angry reaction	9.8 (3.0)	10.9 (2.2)	-1.19	33
Anger suppression	21.8 (4.6)	21.5 (3.9)	0.27	35
Anger expression	15.6 (4.8)	19.3 (4.5)	-2.42*	35
Anger control	20.6 (6.5)	17.0 (4.1)	2.07*	35
Frequency of anger expression	32.8 (11.2)	39.8 (7.9)	-2.21*	35

Note. PTSD symptoms were measured using the PTSD Checklist, and depression was measured using the Beck Depression Inventory. And dimensions of anger were assessed using the State-Trait Anger Expression Inventory.

\* $p < .05$ .

measures of psychiatric symptoms other than PTSD did not emerge as significant predictors in the present study. These findings suggest a tendency for individuals to participate in specialized PTSD treatment primarily to address specific symptoms of PTSD rather than to address other specific or generalized difficulties. In addition, only specific anger difficulties predicted continuing into the Anger Management group. Although the individuals who enrolled and continued in treatment did appear to be those who exhibited the greatest need for treatment, it is important to note that the majority of the veterans who were evaluated in this clinic endorsed high levels of PTSD symptomatology but remained untreated. This finding underscores the value of this line of research and the need to identify and extend services to those who remain unserved.

Although some authors have suggested that avoidance symptoms may hinder participation in PTSD treatment and Brady et al. (2001) found avoidance symptoms associated with premature withdrawal from an exposure-based PTSD treatment study, we found that higher levels of avoidance symptoms actually predicted continuing in our PTSD treatment program once individuals had begun treatment. This finding is only preliminary; however, further investigation should consider whether individuals with prominent avoidance symptoms might be more responsive and willing to participate in a treatment program initially focusing on psychoeducation and skill-building rather than explicitly addressing their trauma.

Limitations of the sample and of the data analysis limit the conclusions that may be drawn from these findings. Our sample was restricted to male veterans seeking evaluation or treatment for PTSD in a single urban VA medical center, and most participants had suffered from PTSD for decades. Even those who did not meet full criteria for PTSD reported high levels of PTSD symptomatology and psychological distress across measures. Unique aspects of this sample or this treatment clinic may have influenced some of the findings. Regarding the analyses, we conducted a large number of exploratory bivariate analyses to examine a variety of potential predictors. These exploratory findings must be replicated in future hypothesis-driven investigations before any conclusions may be drawn.

Despite these limitations, this study addresses an important issue that has received very little empirical attention. The findings of this study are clearly preliminary, and the most important implications concern the suggestion of possible directions for future research in this area. These findings highlight the need for systematic research evaluating factors associated with participation in PTSD treatment. Future research in this area might consider other potential predictors of enrolling and continuing in treatment, including constructs such as locus of control, perceived self-efficacy, motivation to change, readiness for change, previous therapy experiences, attitudes about and expectations for therapy, and social support for therapy. These relationships should be investigated in broader samples of individuals exposed to a wider range of traumas and in individuals seeking treatment soon after trauma exposure. Future research should also investigate variables associated with enrolling in individual therapy or with seeking treatment in other settings.

This study represents an important preliminary effort to identify individuals who, despite suffering from significant symptoms of PTSD, are unlikely to enroll or continue in PTSD treatment. Identification of variables associated with participation in treatment is only a first step toward enhancing service delivery to individuals with PTSD. We must also understand how these variables facilitate or impede enrollment and continuation in therapy. An increased understanding of the characteristics of individuals with PTSD who do not participate in treatment may guide the development of pretherapy interventions, which might target treatment-interfering variables, potentially facilitating the development of attitudes and behaviors consistent with successful participation in PTSD treatment. Development and evaluation of such interventions might enhance our ability to extend services to individuals who need them and may enable a larger proportion of these individuals to benefit from the increasingly effective PTSD treatments

that we have to offer, ultimately reducing the personal and societal costs associated with this potentially devastating disorder.

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